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Correspondence

[The editors are not responsible for statements made in the correspondence column. Anonymous communications cannot be considered, but the names of correspondents will be withheld when so desired.]

The American Merchant Marine

To the Editor of SCIENTIFIC AMERICAN:
A correspondent in a recent issue of the SCIENTIFIC AMERICAN set forth the difference in the cost of operation of steamers operated under the United States navigation laws and those which operate under the navigation laws of foreign countries. The higher wages and feeding stipulations are given as the reason that the cost under our laws would amount to something like \$6,000 on the average sized tramp plying in foreign trade against the American owner, even though the laws allowed him the privilege of buying foreign tonnage and securing American registration. This is true. But why should our navigation laws compel an American citizen to employ American crews in foreign trade? Even under the present subsidy laws under which a few American lines operate, the number of Americans employed is limited. Why should not an American shipowner have the same right to employ whom he pleases as has an American railroad builder or any other employer of labor?

This year we have the greatest movement in export cotton that the United States has ever seen. All moving in foreign tonnage. Our Gulf and West Indian trade is constantly increasing and it is practically carried on with foreign built and owned tonnage. The earnings of foreign tonnage this year due to the immense export movement from the United States as well as from goods imported will be tremendous and the various owners and investors abroad will receive heavy dividends. As the United States are not investors in foreign shipping, nothing will come to this country for distribution in the way of dividends. In this great fleet that operates under the flags of foreign nations, is no American sailor. Under present conditions we pay the freight, but we distribute nothing in the way of dividends to Americans.

Our navigation laws say that we must employ so many sailors on American ships—so many according to the tonnage of the ship. Yet the navigation laws have killed American shipping in foreign trade. Hence there are no American sailors in foreign trade. Of what benefit are the navigation laws?

There is another statement that your correspondent made, and like many similar statements of an erroneous nature, regards the solution of the restoration of the American flag to the deep sea trade. The particular statement that I now refer to is that the "German government guarantees a dividend to the North German Lloyd of 7 per cent on its stock." Of course this is taken as subsidy payment and if it were true it would be a subsidy, but it is not, but it is astonishing that such statements continue to be made when the truth can readily be ascertained. Now the facts are that the North German Lloyd paid 3 per cent dividend last year and 1 1/2 per cent the year before and before that nothing. The North German Lloyd is pre-eminently a passenger line and in the panic of 1907 cut into its earnings heavily. Fast passenger steamers have their advantages for the United States trade as well as they have for foreign, and fast steamers under the American flag are desirable.

It might be well held, that for certain routes, under the American flag, mail subvention is necessary to enable the American line to establish itself, but this policy has been so far ineffective because of the extraordinarily higher cost of building in the States as compared with the cost of the foreign builders, and this condition will have to be adjusted ere the mail subvention act will have any beneficial influence on the shipping industry of the United States. The one thing that will stimulate American interest and investment in shipping is to give Americans the right to engage for the world's commerce on the same terms that favor foreigners. Give the right to an American to buy a foreign steamer and grant it American registration. Give him the freedom as to crews that for-

eign steamship owners enjoy. Compel him to have American officers. Steamers so registered to engage in foreign trade only.

To-day we have practically no American steamers engaged in foreign trade and no American sailers, so the continued opposition to a free ship policy is difficult to understand. We can hurt no American interest in foreign shipping as there is no American interest to be hurt. If it hurts any interest it will be that of foreign steamship interests.

Why is the present policy continued? Possibly in the hope that the Americans will be willing to allow a wide-open subsidy bill to finally become a law, and possibly to the fact that shipping generally is but little understood by the American people. But the interest is growing and growing rapidly and the interest taken in the Panama canal is stimulating investigation. Ere the Panama canal is opened it will be recognized that the restoration of an American merchant fleet to the deep sea foreign trade is but second in importance to the tariff as an issue in which the country is vitally concerned.

Some time ago President Bowles of the Fore River Shipbuilding Company stated that it would take ten years to build a fleet that would carry the sea commerce of the year 1910. Yet all the time our over-sea commerce is increasing yearly. It has recently been given out, that our domestic shipyards with government work and the orders for steamers to be ready for operation on the opening of the Panama canal, have all the work they can handle. What then shall the American people do? Rest quiet and allow foreign shipping nations to reap the benefit of our investment of \$400,000,000 in the Panama canal? Is that what the United States built the canal for?

Let the American people answer.
Chicago, Ill. CHARLES DEPRESEE.

The Technique of Clam Digging

To the Editor of SCIENTIFIC AMERICAN:
"It pays to advertise" is something we often hear, and it certainly does; but the statement you made in a recent ad. in the Literary Digest regarding the technique of clam digging does not add any luster to an advertisement, as it is so very evident that the party who wrote the ad. was a long way off from his subject.

Now, this is not in the sense of a knock, for only people who live along the coast are supposed to know anything about digging clams in the commonly expressed sense of the words. Everybody who lives in the Puget Sound region has an opportunity to know that you do not dig clams out of a boat with a rake, and I presume that our eastern clams have the same habit of keeping far below the rake's reach.

I like the SCIENTIFIC AMERICAN so well that I dislike to see any misstatement of this sort, therefore I am telling you that the way we dig clams in this country is to take a good stout spade or fork, and go down to the beach when the tide is out, and get busy just the same as you would to dig potatoes. Still, perhaps I should explain to the man who wrote the ad. that you do not dig potatoes with a hayrake. In any event, I hope the information will be of some use, as it is given in all good friendship.

Seattle, Wash. HUGH N. JOHNSON.

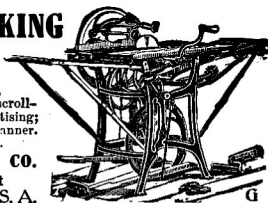
The Current Supplement

IN the present issue of our SUPPLEMENT, No. 1876, Prof. Woodworth discusses the Psychology of Light or, in other words, the subjective aspect of the science of optics. Mr. Coleman contributes an article on modern methods of bunkering steamers. A very interesting topic treated in this number is that of fireless locomotives. Malaria is one of the most widespread diseases, and its study has of late been receiving a great deal of attention, with results which are most gratifying. Some facts about malaria, derived from Dr. Howard's govern-

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ment publication, and a summary prepared by Sir Roland Ross, are presented in this issue. Many have marveled at the extraordinary power which carrier pigeons possess of finding their way back to their home. A scientific discussion of the *modus operandi* of this remarkable performance is discussed in an article by M. Tevis.—Insect aviation presents certain features which are not as yet incorporated in artificial aviation as practiced by man. The subject is lucidly expounded in an illustrated article derived from *La Nature*.—The Sixty-Inch Reflector of the Mt. Wilson Observatory is briefly described.—An article reproduced from *Engineering* tells how the government aids the man out-of-work in France.—A. P. Thurston discusses from a scientific standpoint the stability of aeroplanes.—We have become accustomed to the term "plant psychology." The senses of plants forms the subject of a brief article derived from *La Revue*.—Major Squier, the originator of the system, describes the use of wire directed electric waves in multiplex telephony and telegraphy.

The Strength of an Aeroplane

(Concluded from page 558.)

other is to allow streams of smoke to flow past the model. Both methods show the direction of flow at all parts of the current except where the eddies are so violent as to make the thread flutter and the smoke streams break and lose their identity. The thread is more convenient to use than the smoke, but if too long will not accurately coincide with the stream-line, owing to the effect of tension. The smoke coincides with the direction of flow at all points, and, as Prof. Marey has shown, may even indicate the velocity at all parts of the current, if the smoke-streams be emitted from nozzles vibrating at a known rate transversely to the current. In this case the smoke streams are wavy, and show by the number of waves per inch what is the speed of the current at the place of observation. The number of waves per inch can easily be counted on a photograph of the model and of the smoke-streams surrounding it. Indeed, the velocity and direction of flow for an entire longitudinal section of the current about the model may be realized by a glance at the photograph if the smoke streams surrounding it. Indeed, the comb placed transversely to the current and vibrated lengthwise, say ten times per second, as done by Marey.

Mr. Curtiss is at present trying different methods of producing distinct and clearly visible lines of smoke. At first air was sucked over the surface of ammonia in a bottle, thence over hydrochloric acid in a second bottle, thence through holes in a tube placed across the wind current. But the smoke so produced is pale and requires good lighting in a dark wind-tube to render it distinct enough for easy observation and photography. It is hoped that a simple method may be found whereby dense black smoke streams may easily be produced and led into the current.

The absolute velocity of the air in the Curtiss wind-tube was found by a screw anemometer to be about 25 miles per hour at the middle of the current. The relative velocity at different parts of a section of the current was found by observing the deflection produced on a straight exploring wire, like a knitting needle, ten inches long, suspended from a horizontal wire fixed transversely to the stream. When the point of suspension of the exploring wire was moved across the tube, the suspended wire was deflected from the vertical less and less as it advanced from the mid section toward the lateral wall. The impact pressure of the air against the wire is proportional to its displacement along any longitudinal line of the current. Hence, of course, the velocity is as the square root of such displacement. In this manner the speed of the current was observed to decline about two per cent from midstream to within two inches of the lateral wall, as previously stated.

The wind-tube and tension tongs described in this article were designed by Mr. Curtiss and Dr. Zahm, who were experimenting together. Two other contrivances were devised for finding the tension in aeroplane wires; one being an instrument for giving the pitch of the wire in vibration, the other being an in-

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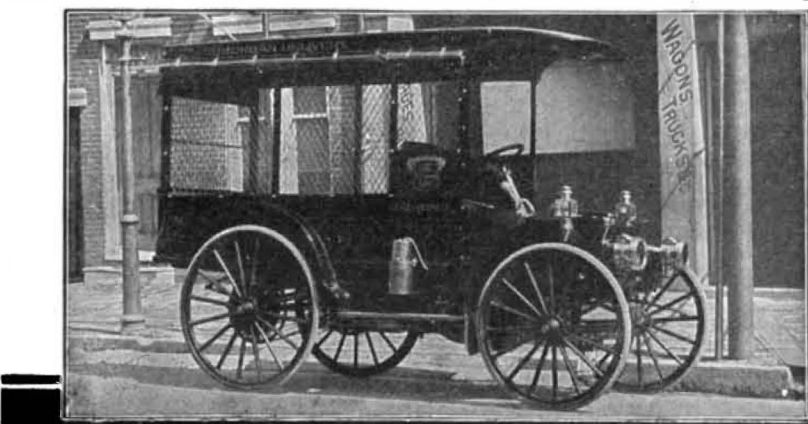
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